

705 SHORT TERM ADEQUACY ASSESSMENTS

1. Purpose

To define the policy and procedures for the System Controller (SC) when determining short-term adequacy (STA) of available supply to meet the Alberta Interconnected Electric System (AIES) demand requirements and when directing available supply.

2. Background

On occasion, there are insufficient energy offers in the energy market merit order to meet the load requirements of the AIES. The SC must follow the steps identified in [OPP 801](#) Supply Shortfall to manage this condition. [OPP 801](#) identifies a number of steps to be taken to reduce the possibility of shedding firm load.

STA assessment is performed by the AESO to determine if there will be a supply shortfall. If the STA assessment indicates that there will be a supply shortfall, then sufficient notice must be given to pool participants with long lead time generating asset to allow for the start-up times of such assets

3. Policy

- An STA assessment must be performed for each hour of the current trading day and for each hour of the following six trading days to determine if there will be an adequate supply to meet Alberta Internal Load (AIL). The STA assessment must be performed as follows:

The sum of the following:

- AC from all generating assets in Alberta equal to or greater than 5 MW with a start-up time ≤ 1 hour or with a submitted start time at or before the period being assessed,
- Estimated output from wind power facilities (Table 1),
- Estimated amount of Price responsive load (Table 1),
- Estimated amount of demand opportunity service (DOS) load that will be curtailed (Table 1),
- On-site generation (Table 3) that supplies behind-the-fence load and submits AC as a net-to-grid value,
- Import available transfer capability (ATC) on the Alberta-BC Interconnection,
- Import ATC on the Alberta-Saskatchewan Interconnection.

Minus each of the following:

- The peak forecast load from the day-ahead forecast of AIL,

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- 3.5% of forecast load to account for ancillary service requirements and directing supplemental and excess spinning reserves,
 - Constrained down generation, with the exception of wind constraints.
- If the above calculation results in a negative number then it would indicate inadequate supply for the hour, and that the following actions may be required:
 - Issuing a message to pool participants that a supply shortfall is anticipated and waiting for voluntary commitment of generation.
 - Directing pool participants with long lead time generating assets and available generation in Table 2 to start.
 - Generating assets in the long-lead-time energy list and Table 2 will not be directed to start if the required start-up time of the generating asset is greater than the time for the supply shortfall event.
- If directed by the SC, the pool participant must bring the long lead time generating asset to the directed level and remain there until further directed by the SC.
- The pool participant that has received a long lead time energy directive may:
 - Accept the long lead time energy directive and become eligible for compensation as described in Appendix 7 of ISO Rules, or
 - Decide and inform the SC of its decision to offer the long lead time generating asset in the energy market, and be dispatched according to the energy market merit order, in which case it must meet the time and quantity requirements of the long lead time energy directive, by:
 - submitting to the ISO at least two hours prior to the beginning of the settlement interval the time of day that the long lead time generating asset will be synchronized to the AIES, , or
 - updating the AC for those long lead time generating assets synchronized to the AIES whose AC was excluded due to asset constraints (Table 2), at least two hours prior to the beginning of the settlement interval.
- for the above long lead time generating assets for which the pool participant has indicated its intention to start or update its AC, the SC will cancel the long lead time energy directive and dispatch them according to the energy market merit order. These long lead time generating assets will not be eligible for compensation as described in Appendix 7 of the ISO Rules.
- long-lead-time generating assets are sorted in this priority order:
 1. Shortest start-up time
 2. Largest incremental AC
 3. Minimum run time
 4. Loss factor
- Directives for energy from the long-lead-time generating assets will be issued commensurate with the longest lead time of these generating assets, that are available to deliver energy by the time the energy is required, plus 1 hour if conditions permit.

4. Responsibilities

4.1 ISO

- The ISO must update the ISO Rules and the OPPs as required.

System Controller

- The SC must perform STA assessments to determine if long lead time generating assets need to be directed to start.
- The SC must direct pool participants to start long lead time generating assets according to the priority order listed in section 3.
- If operating conditions unexpectedly change and long lead time generating assets that were directed to start are affected, the SC must cancel or adjust directives to the pool participant as required.

4.2 Pool Participants

- If a pool participant, that has received a long lead time energy directive, decides to participate in the energy market, it must call the SC to inform it of its decision.
- If the pool participant decides to start the long lead time generating asset, it must submit a start time for its generating asset in automated dispatch and messaging system (ADAMS) equal to or greater than the required lead time to start the generating asset at least two hours prior to the beginning of the settlement interval.
- If the pool participant's generating asset (Table 2) is already synchronized to the AIES but does not have long lead time energy reflected in the AC of its offer in the ETS, the pool participant must restate its AC for the settlement intervals and submit the restatement equal to or greater than the required lead time to start the long lead time generating asset(s) at least two hours prior to the beginning of the settlement interval.
- The pool participant must take appropriate steps to make the energy available for the settlement interval time indicated in the long lead time energy directive and notify the SC before synchronizing the long lead time generating asset to the AIES. When the long lead time generating asset comes on-line the pool participant must ramp its generating asset to its directed level and remain there until further directed by the SC.

5. System Controller Procedures

5.1 STA Assessment

When a STA assessment indicates there may not be adequate supply to meet AIL, the SC must:

1. If there is a change to the import ATC on either the BC or Saskatchewan interconnection, repost ATC.
2. Ensure that a transmission limiter has been entered in the dispatch tool (DT) for any generating asset that has been limited due to transmission constraint.
3. From the Dispatch Tool (DT) open the supply adequacy report and observe the supply adequacy value provided for each hour.
4. If all of the hourly supply adequacy values calculated in the supply adequacy report are positive then no additional generating assets are required.

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5. If any of the hourly supply adequacy values from the supply adequacy report are negative then notify the AESO personnel as per Table 1 in [OPP 1303](#) (confidential) that a supply shortfall is forecast.
6. Issue the following message from ADAMS corresponding to the first hour that has a negative supply adequacy value and enter into the SC shift log and select the post to web option:

“A supply shortfall is forecast starting at hh:mm on yyyy-mm-dd. Any generating asset that is planning to start, notify the SC as soon as possible. Refer to the supply adequacy report on the ISO website.”
7. If any of the hourly supply adequacy values from the supply adequacy report are negative and transmission maintenance can be canceled to remove the generation constraints as described in Section 5.1 in [OPP 801](#), then add the amount of increased generation and/or increase in import ATC to the supply adequacy value.
8. If it is forecast that all energy from the long-lead-time generating assets identified in step 9 below and incremental import ATC available on the AB-BC interconnection by arming available import load remedial action scheme (ILRAS) will be required to meet AIL, then refer to Section 5.1 in [OPP 801](#) to ensure the planning steps for managing a supply shortfall are completed. To determine the incremental Alberta-BC import ATC using ILRAS load as a factor for the period being assessed, perform the following:
 - a. Multiply the forecast load by 0.023 to get an estimated ILRAS load value.
 - b. Refer to Table 1 in [OPP 312](#) to determine the import ATC level corresponding to the combined ILRAS and LSS value and forecast system load.
 - c. Refer to [OPP 304](#) and take the lesser of the import ATC transfer limit and the import ATC limit determined with the use of ILRAS and LSS and subtract the forecast import ATC limit for the period being assessed.
9. Go to Table 2 and look up the EMS display for each generating asset as indicated in the table, and if any of the “Generators” listed in the table are off-line then phone the pool participant whose “Generator” is off line and ask if it has any long lead time energy that has not been reflected in its currently offered available capability in the energy market merit order. Advise the pool participant that this is not a directive to start available generation. If long lead time energy is available, then ask:
 - What amount of additional long lead time energy would be available?
 - What lead time is required to start the “Generators”?
 - What is the minimum run time of the “Generator s“?If there is sufficient time to start the ”Generators” to assist in the anticipated supply shortfall, then include this amount when making the assessment in step 8.
10. Wait a reasonable period as conditions permit for any voluntary response to the ADAMS message issued in step 6.
 - If a pool participant notifies the SC that it is planning to start a generating asset, then request the pool participant to enter the generating asset start time in ADAMS as soon as possible in accordance with the ISO Rules with the exception of generating assets identified in Table 2.

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- If a pool participant with a generating asset identified in Table 2 is planning to start a “Generators” with a start-time greater than 1 hour, the pool participant may restate its AC in accordance with the ISO Rules as applicable for the appropriate hours to reflect their new offer amount.
 - When a pool participant has submitted a start time or restated their AC for its generating asset, then its restated AC will be used in the supply adequacy calculation and a new supply adequacy value will appear in the supply adequacy report.
11. If there is sufficient response from pool participants and the supply adequacy values become positive, or at any time the supply shortfall is no longer forecast, then:
 - a. Issue the following message in ADAMS to all pool participants and enter it into the SC Shift Log and select the post to web option:
“A supply shortfall is no longer forecast.”
 - b. Go to step 17.
 12. If there is insufficient response from pool participants and the supply shortfall is still anticipated, go to the first hour with a negative supply adequacy and open the long-lead-time energy list of generating assets.
 13. Select generating assets to direct to start from the long-lead-time energy list that is prioritized according to the order in which they are to be directed to start (from bottom to top). If additional energy is also available from the generating assets identified in Table 2, then direct these “Generators” and the assets in the long lead time energy list to start based on the following priority order:
 - Shortest start-up time
 - Largest incremental AC
 - Minimum run time
 - Loss factor
 14. Perform the following when selecting and directing a generating asset to start:
 - Direct generating assets in order to turn the supply adequacy value to a positive number.
 - Direct the generating asset(s) to start at the time plus 1 hour if conditions permit, in order of priority according to step 13.
 - Ensure that if the pool participant has received a directive to start a long lead time generating asset and has decided to offer the generating asset in the energy market according to the ISO rules, cancel the long lead time energy directive and dispatch the generating assets according to the energy market merit order.
 - If the pool participant does not intend to participate in the energy market, it must not reflect changes to its AC or start time to reflect the directive.
 - Include long lead time energy in determining volume of Dispatch Down Service (DDS) in accordance with OPP 101.
 15. Make a note in the SC Shift Log of the generating assets that were directed to start and their response but do not post it to the ISO web.

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16. If insufficient generating assets are committed to start from the long-lead-time energy list and Table 2, then add the incremental import ATC available on the Alberta-BC interconnection by including ILRAS load as a factor, as determined in step 7, to the supply adequacy number.
17. In the supply adequacy report double-click on the line of the next hour with a negative supply adequacy value and repeat steps 12 through 16.
18. If there is an unanticipated reduction in supply, then repeat the STA assessment.
19. If there is an unanticipated increase in supply, such as a large thermal generating asset coming back on-line earlier than expected, and if generating asset(s) from the long-lead-time energy list were directed to start and are no longer required, then cancel the long lead time energy directive and issue the following message in ADAMS to all pool participants and enter it into the SC Shift Log and select the post to WEB option: "A supply shortfall is no longer forecast."

5A. Effective Date

The specified amendments cited in Application No 1605243 for Operating Policy and Procedure will be effective 30 calendar days after the date to be determined by the Commission for, collectively, ISO rules consisting of G1 definitions, 6.3.5.1, 6.3.5.2, 6.3.6.2, 6.3.6.3 and Appendix 7 (collectively the "LLTD Rule")

6. Figures and Tables

Table 1

Values to use in short term adequacy calculation

Item	Value (MW)*
Wind Power Facilities output	145 ¹
Price Responsive Load	200 ²
DOS Load	20 ³

Note:

1. A fixed value will be used for the time period beyond six hours. For the time period within six hours, an estimated value based on historical data analysis will be used.
2. A fixed number is used for period beyond the next day. For the current and next day, it is the current real-time value.
3. Most DOS loads are price responsive; therefore, this number is less than the actual amount of DOS that is normally on the system

*These values and information within the corresponding notes are based on experience or best judgment and will be changed in the supply adequacy report on the ISO website if values closer to actual are identified..

Table 2

Generating assets that have long lead times greater than 1 hour that may not be able to declare all their generation as AC in the energy trading system

Confidential: Click link below to view

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Table 3

On-site generation that provides AC as a net-to-grid value

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[View confidential tables](#)

7. Revision History

Issued	Description
2010-03-03	Supersedes 2009-02-19
2009-02-19	Supersedes 2009-11-13
2009-11-13	Supersedes 2008-03-04
2008-03-04	Interim OPP supersedes 2007-12-03; only confidential information changed
2007-12-03	Supersedes 2007-01-17
2007-01-17	Approved for interim implementation; supersedes 2005-03-30
2005-03-30	Supersedes 2004-12-22
2004-12-22	New Issue, approved for interim implementation 2004-12-21